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September, 1980 Number 6

MONTANA RAIL PLANNING NEWSLETTER

PREPARED BY: RAIL PLANNING UNIT, MONTANA DEPARTMENT OF HIGHWAYS

Department Reassesses Its Priorities For Utilizing Federal Rail Service Continuation Assistance

In the 1980 Update to the **Montana Rail Plan,** the Department has identified the following line priority for federal assistance:

Terminal	Length (miles)	Est.Rehab. Cost
1. Miles City-Gasgoyne, ND	169.0	$ 200,000
2. Power-Choteau-Fairfield	39.1	806,768
3. Lewistown Area		
a. Moccasin-Spring Creek	21.04	280,005
b. Spring Creek-Lewistown	10.3	217,130
c. Lewistown-Moore	17.6	371,019
Spring Creek-Geraldine	65.4	$1,378,672

Federal entitlement funds presently available to Montana amount to $4,075,664, which require $1,018,916 in local matching funds. The latter can be provided by state or local governments, shippers, or the owning railroad. (The State of Montana does not have either the authority or funds to match the Federal Local Rail Service Continuation Assistance funding available under the Section 803 program.)

Montana is supportive of the actions being taken by the FRA and various states to the east to make immediate repairs and undertake longer term rehabilitation of the former Milwaukee mainline east of Miles City so that rail operations can be sustained on a permanent basis. Thus action to retain eastbound competitive rail service at Miles City helps ensure the marketability of Montana-produced coal. Montana understands that South Dakota and North Dakota are proposing to utilize a major portion of their federal local rail assistance program entitlement to improve the Milwaukee trackage between Gasgoyne, ND and Miles City. Montana will provide $200,000 of its entitlement for this project for a $2.5 million total in rehabilitation improvements.

Improvement of the Power-Choteau-Fairfield line is based on a need to provide continuing rail service to a major barley producing area of the state. Had the production primarily been wheat, a grain subterminal might be a more appropriate solution. Given the diverse malt house and feed lot destinations for barley, there simply is not enough of this commodity transported to any one destination to permit multiple car or unit train shipments.

Improvements of the grain lines in and around Lewistown are based on the need to rehabilitate former Milwaukee lines in central Montana to help ensure satisfactory service to the grain public warehouses dependent on rail service, and at the same time remove any short-term possibility of abandonment or inclusion of the rather substantial costs of rehabilitation in the rate base. The grain subterminal study at this point is not far enough along to determine whether such facilities are economically and institutionally feasible and thus should be implemented in place of continuing the traditional means of transportation. Feasibility depends on whether a subterminal can generate sufficient economic shifts for central Montana farmers and elevator operators to overcome the inherent fear and distrust of a major change in the transport of grain, and whether elevator operators and other grain shippers are willing to combine their shipments into unit train quantities bound for a single destination while retaining their independence and competitiveness in other areas. Even if the results are favorable (see the separate article on the Grain Subterminal Study), the Department anticipates that it may take several years before such facilities are implemented. In the meantime, rehabilitation of these lines is absolutely essential, although the level of investment should be such to ensure a relatively short payback period. Obviously, the state must not become locked into infrastructure improvements which perpetuate obsolete transport systems if systems offering greater transport economies are proven to be feasible.

Department Completes Its Assessment of Seven Additional Light Density Lines

In the previous newsletter, seven additional light density lines were identified for detailed study. These lines are:

RR	Line (Terminl)	Length
BN	Beach, ND-Carlyle	20.8
BN	Power-Pendroy	44.5
BN	Hesper-Rapelje	38.2
BN	Livingston-Brisbin	10.3
BN	Sappington-Harrison	10.0
BN	Whitehall-Alder	45.6
BN	Missoula-Darby	65.9

The Department found that all seven lines are either marginal or uneconomic to the owning railroad. This is caused by the lack of traffic rather than their physical condition. Two of the lines (Beach-Carlyle and Power-Pendroy) require rehabilitation. The other five lines only require routine maintenance, mainly tie renewals and some ballasting.

The Power to Pendroy line is a strong candidate for governmental rehabilitation assistance, especially the Power-Choteau segment in combination with the Milwaukee's Fairfield-Eastham Jct. segment. The objective is to combine together the principle traffic generating points of two somewhat unprofitable lines operated in the past by different carriers to produce one line fully capable of standing on its own.

On the basis of Department estimated revenues and costs, the Department anticipates that the Burlington Northern may eventually seek the abandonment of several of these lines (especially Livingston-Brisbin and Sappington-Harrison). However, the Burlington Northern has taken no action to change the status of these lines on their ICC Systems Diagram.

The Grain Subterminal Study (Part II)

The May 1980 edition of the **Rail Planning Newsletter** introduced the Grain Subterminal Study, the purpose of which is to determine quantitatively (so far as is possible) the economic and institutional feasibility of modernizing Montana's grain transportation system to gain the efficiencies of centralized collection and unit train freight movements. Feasibility depends upon whether subterminals can generate sufficient economic benefits for Montana farmers and elevator operators to overcome the inherent fear and distrust of a major change in the transport and marketing of grain, and whether elevator operators and other grain shippers are willing to combine their shipments into unit train quantities bound for a single destination while retaining their independence and competitiveness in other areas.

This study is being undertaken jointly by the Departments of Highways and Agriculture. This article is intended to provide insight into the approach being utilized by the contractor — Roger CREIGHTON ASSOCIATES, Incorporated of Delmar, NY.

Similar studies have often relied on analytical techniques such as linear programming to accomplish market distribution and costing functions. The former refers to allocating the grain produced among the various receiving markets generally on the basis of minimizing total transport costs. Unfortunately, this approach ignores the competition taking place in the marketing of grain — that overall transport costs will never be minimized when multiple firms compete for available business. On the other hand, a grain company or cooperative will seek to minimize its own transport costs to improve its efficiency, expand its share of the market, and increase its profits.

The markets for Montana wheat and barley are quite well known. A majority of wheat produced winds up at export houses located in Portland or nearby ports on the Columbia River. A smaller portion is shipped to flour mills in Washington. Barley destinations vary depending upon the quality of the product, which is heavily influenced by weather. It either moves to malt houses (most of which are located in the midwest) or feed lots in Oregon or Washington. Only export wheat moves in sufficient quantities to take advantage of the economies of scale offered by the unit train. Flour mills and malt houses generally have congested rail unloading facilities; they have neither the track capacity nor the annual volume necessary to support unit train operations. Nor is their any concentration of such facilities in a particular area.

Starting in 1975, the Montana Department of Agriculture has maintained extensive transport information on grain originating within the State. This coupled with other shipment data obtained from the Burlington Northern and Milwaukee, as well as other sources, has provided a fairly complete historical picture of the variation in grain shipments, destinations and model usage over time. Given the above, the contractor has been able to allocate wheat movements among the different export markets and modes on an empirical basis. Up until late 1976, most (say 90 percent) Montana wheat moved by rail; since then, car supply and local service problems coupled with the construction of grain terminals at Lewiston, ID and other downstream river ports has resulted in a sizable diversion of Montana-produced wheat shifting to motor carrier transport. Also a factor is the competitiveness of rail and truck rates.

Having solved the allocation problem, the work comes down to costing out the various transport alternatives between farm and market. In considering solutions such as the grain subterminal, the underlying premise is that its feasibility first depends upon establishing whether the unit costs are less and the quantities great enough to economically justify the facility, assuming initially that the institutional problems can be worked out. The following discussion and schematic figures are designed to illustrate the process involved.

Figures 1 and 2 depict the present grain marketing system in Montana. Rather than deal with individual farms, counties producing significant amounts of wheat and barley have been divided into a series of grain-producing units (GPU's) for which independent data are available from the Montana Soil Conservation Service on total grain production by year. Nearly all of the grain produced is marketed through country elevators or grain public warehouses (GPW's), as illustrated by Figure 1. Transport is by five district modes or modal combinations as indicated in Figure

FIGURE 1

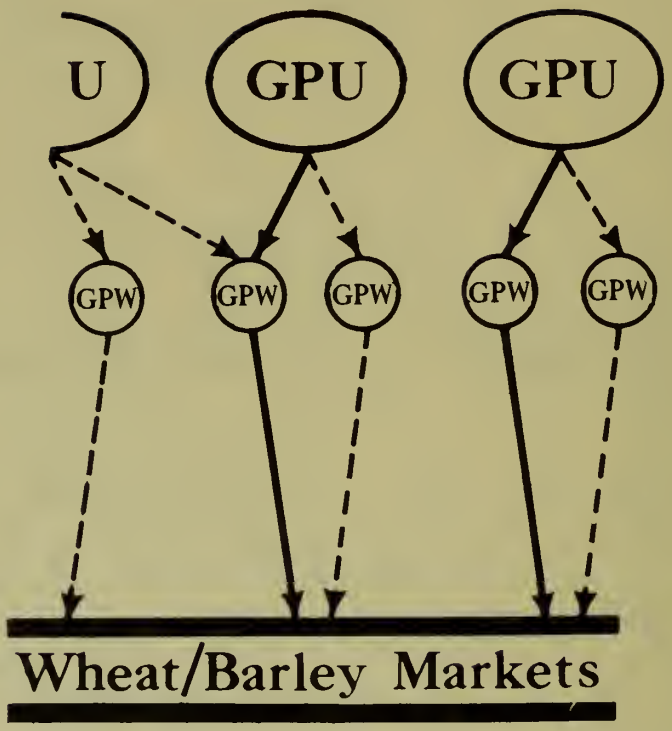


FIGURE 2

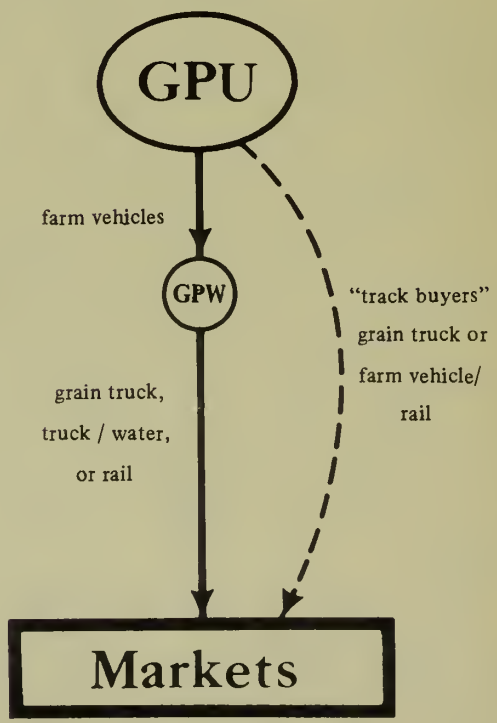


FIGURE 3

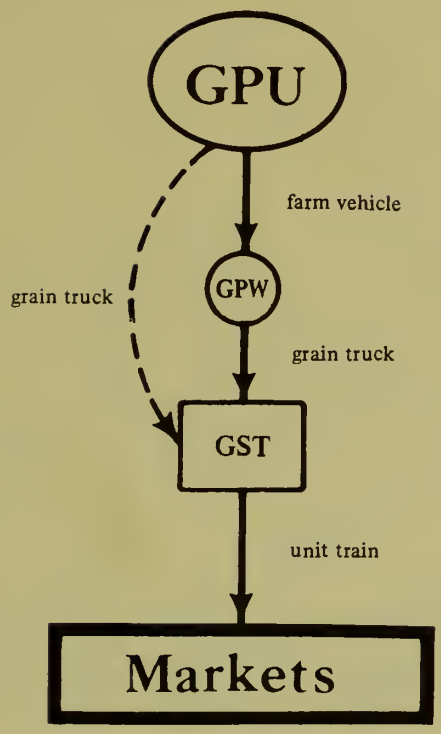
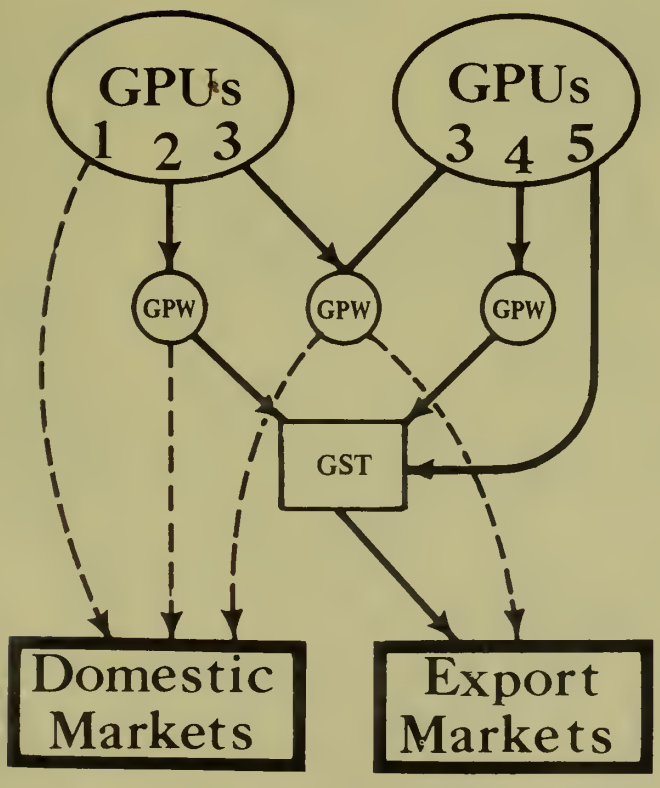


FIGURE 4



2. Most grain moves by farm truck to grain public warehouses, although increasing amounts are moving directly to markets via grain trucks or farm vehicle/rail, thus bypassing the elevators. Roughly, two-thirds of the grain marketed by grain public warehouses still moves by rail, although sizable amounts are presently moving by grain truck/barge through the Port of Lewiston and other Snake River ports. A small amount of grain traffic moves all-the-way by truck.

The addition of a grain subterminal to the transport pipeline is illustrated by Figure 3. As visualized, this facility supplements rather than replaces existing elevators by functioning as an assembly point for large quantities of wheat, which can then move by unit train to the export houses in and around Portland. Grain would be transported to the subterminal by grain trucks.

This concept differs somewhat from the multi-car rate structure presently being developed by the Burlington Northern. Under proposed rate structures, elevator operators located along a segment of track serviced by the same local freight could jointly arrange for the spotting of some 52 to 54 covered hoppers comprising a full train. Applicable rates would be a function of the number of loading points; the fewer the number, the lower the rate. Shippers would be given a minimum time period within which to load out the cars, which would then be reassembled into a train for movement to a single destination. This concept is similar to the "grain train" previously tried and still advocated by some.

The Burlington Northern concept is short-term — it cannot offer the transportation cost reductions potentially possible through the operation of a dedicated train. The main difference is that under the grain subterminal concept, movements would be from a single point to a single destination on a regularly scheduled basis, rather than as a one-time or irregular movement. The multiple car rate structure being developed by the Burlington Northern does offer the possibility of immediate transport cost savings if the elevator operators are willing to cooperate in their marketing and transportation decisions. It does get around present infrastructure limitations (mainly the lack of suitable trackage and the ability to load out 50 or more carloads in 24 hours without additional switches) which effectively preclude unit train operations today.

Figure 4 illustrates what might happen were a grain subterminal implemented. Some grain would bypass both present elevators and the grain subterminal, as illustrated by possibility #1. Under possibility #2, a large portion of the grain would be marketed through the grain subterminal, although domestic markets would continue to be served by conventional service. Some elevators may choose not to market grain through grain subterminals at all, as illustrated by possibility #3. On the other hand, an elevator may choose to change past marketing patterns or the types of grains handled and route all of its grain through the subterminal, as illustrated by possibility #4. Finally some of the larger farmers might seek to deal with the subterminal directly, by-passing existing elevators as indicated in possibility #5.

The key is determining specifically the conditions (if any) under which transport cost reductions potentially achievable through unit train operations are greater than the amortized capital and operating cost of a grain subterminal plus any added truck transport costs involved in moving grain to the subterminal. To do this, the contractor will be testing three hypothetical scenarios. The first assumes that each elevator will make its own participatory decision based solely on which routing (i.e., direct to market or through a grain subterminal) costs less. The second, which represents the opposite situation, assumes that all elevators will participate in the program and market their export wheat through the nearest subterminal. The third scenario is based on the concept that all marketing and transport decisions will be transferred to operators physically located at grain subterminals, and that the role of present elevators will be reduced to adjunct storage. The resulting computations are expected to shed light on the financial feasibility of grain subterminals in general before considering institutional aspects. They are a prelude to developing and testing more specific proposals focused around regional needs.

The contractor has assembled and computerized both grain production and rail and highway network information. Presently the firm is developing a grain transportation model (computer program) which will serve as the principle tool used to determine financial feasibility. No results are yet available although the contractor expects to complete work by late September or early October. Future editions of this newsletter will contain additional articles on the grain subterminal study.

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Rail Planning Section
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MONTANA RAIL PLANNING

Editors Note:

This is the sixth edition of a newsletter prepared by the Rail Planning Unit of the Montana Department of Highways to keep those interested in rail planning in Montana informed of (1) the status of planning activities, (2) criteria and goals for rail service, (3) the analytical methods being utilized, and (4) findings and conclusions.

This edition largely focuses on the grain subterminal study being conducted jointly by the Departments of Agriculture and Highways. We invite those interested in this particular study to write or call to be included on the mailing list to receive future copies of this newsletter.

We again invite questions and comments of general interest to our reading audience. We will be happy to respond to such questions through the newsletter.

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